Before the
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
Review of Part 15 and other Parts of the	)	ET Docket 01-278
Commission's Rules	)	RM-9375
	)	RM-10051

REPLY COMMENTS OF SES AMERICOM, INC.

SES Americom, Inc. ("SES Americom"), by its attorneys, hereby replies to comments filed by the Radio Association Defending Airwave Rights, Inc. ("RADAR") and Escort Incorporated and BEL Incorporated ("Escort/BEL") on the Notice of Proposed Rulemaking and Order ("NPRM") in the above-captioned proceeding.[1]

I. INTRODUCTION.

SES Americom supports the Commission's proposal to require that unlicensed consumer radar detectors be subject to emission limits in order to prevent interference to Very Small Aperture Terminal ("VSAT") satellite operations.[2] In comments in this proceeding, SES Americom and other affected parties presented incontrovertible evidence of serious interference to VSAT and other satellite operations caused by radar detectors.[3]

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1 FCC 01-290, rel. October 15, 2001 (the "NPRM"). Comments of RADAR Members, ET Docket 01-278, RM-9375, RM-10051, February 12, 2002 ("RADAR Comments"); Comments of Escort Incorporated and BEL Incorporated, ET Docket 01-278, RM-9375, RM-10051, February 12, 2002 ("Escort/BEL Comments").

2 NPRM, ¶¶ 1, 10-14.

3 Comments of SES Americom, Inc., ET Docket 01-278, RM-9375, RM-10051, February 12, 2002 ("SES Americom Comments"). In the same dockets, see also Comments of the Satellite Industry Association ("SIA Comments"); Comments of Hughes Network Systems, Inc. ("Hughes Comments"); Comments of Loral Skynet ("Loral Comments"); Comments of PanAmSat Corporation ("PanAmSat Comments"); and Comments of Comsearch ("Comsearch Comments").

As discussed below, both RADAR and Escort/BEL first attempt to minimize the problem faced by VSAT operators, and then propose wholly inadequate approaches for solving it. They grossly underestimate the magnitude of the interference caused by their unlicensed devices, and attempt to blame authorized satellite operations for a share of the problem. RADAR's proposal to voluntarily limit emissions to Class B levels falls far short of that necessary to ensure that radar detector manufacturers fulfill their obligation, under Part 15 of the Commission's rules, to ensure that the detectors do not cause harmful interference to authorized services. Escort/BEL's proposal, to vacate the band in order to avoid adoption of limits in the band that may impede other unlicensed devices, likewise leaves satellite operators unprotected.

The Satellite Industry Association ("SIA") is today proposing specific steps the Commission should undertake to eliminate this interference. SES Americom fully supports the SIA proposal.

II. THE RADAR DETECTOR MANUFACTURERS GROSSLY UNDERESTIMATE THE MAGNITUDE OF THE PROBLEM CAUSED BY THEIR PRODUCTS.

A. The Comments in This Proceeding Demonstrate that Interference to Satellite Systems From Radar Detectors is Both Well-Documented and Chronic.

While stating that its members "appreciate the urgency of the VSAT operators's concerns,"[4] RADAR attempts to minimize those concerns. RADAR argues that, "[a]part from a few anecdotes, . . . we are unaware of any evidence linking [radar detector] emissions to VSAT interference."[5]

The record in this proceeding demonstrates that interference to satellite systems operating in the 11.7-12.2 GHz band has been traced, unambiguously and repeatedly, to radar

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[4] RADAR Comments at 2, 7.

[5] Id. at 4.

detectors. Contrary to RADAR's claims, the link between use of radar detectors and interference to satellite operations is unquestionable.

SES Americom identified in its comments several examples of harmful interference from radar detectors experienced by its customers, and presented a detailed report on a particularly well-documented case.[6] Other satellite operators also presented compelling evidence of interference caused by radar detectors to satellite operations. Hughes service agents have traced interference to VSAT networks to radar detectors operating in vehicles parked nearby. "When the radar detector was unplugged, the interference disappeared."[7] Loral as well has been able to trace interference to radar detectors in several cases.[8] And Comsearch stated that "in a number of cases, our measurements investigating possible external interference have determined radar detectors to be the source of harmful interference to Ku-Band earth stations."[9]

Moreover, the record clearly shows that the harm is not limited to VSAT networks. PanAmSat has documented interference to a TT&C link, caused by a radar detector in an employee parking lot.[10] A Loral customer has experienced interference to a Satellite News Gathering system, which was traced to radar detectors in parked cars in a garage across the street.[11] Comsearch stated that its measurements have shown radar detectors to be the cause of interference to both VSATs *and* conventional Ku-band earth stations.[12]

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6 SES Americom Comments at 3-5, Appendix A.

7 Hughes Comments at 4.

8 Loral Comments at 1-4.

9 Comsearch Comments at 1.

10 PanAmSat Comments at 2-3.

11 Loral Comments at 2-3. In that case, remote trucks receiving news feeds were also affected by radar detector interference. Id. at 4.

12 Comsearch Comments at 2.

B. Interference From Radar Detectors Constitutes "Harmful" Interference to Satellite Operations.

RADAR also argues that interference to a VSAT terminal is impermissible only if it "seriously degrades, obstructs, or repeatedly interrupts" the service, and that the NPRM does not allege that the interference rises to this level.[13] The comments in this proceeding, however, unambiguously demonstrate that radar detector interference meets the definition of "harmful interference" under Commission's rules.

The comments provide evidence that radar detector interference causes data errors, video drop out, or loss of data synchronization.[14] Even intermittent exposure to radar detector emissions, from moving cars, can cause these problems.[15] Even worse, despite radar detector industry claims to the contrary,[16] this interference is often continuous. As clearly demonstrated in the comments, radar detectors are often left operating in parked cars, and can easily cause uninterrupted interference to VSAT and other satellite operations.[17] As shown by PanAmSat, under such conditions, re-synchronization is difficult, if not impossible.[18] In fact it is just such continuous interference that has in most cases permitted satellite operators to trace the source of the problem to radar detectors.

Moreover, the comments demonstrate that the costs both to satellite operators[19] and to their customers[20] are high. In the general case, this interference interrupts services to consumers, businesses, schools, hospitals and governmental agencies, including law enforcement

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[13] RADAR Comments at 4.

[14] See, e.g., Comsearch Comments at 2.

[15] Loral Comments at 1-2, Attachment at 1.

[16] Escort/BEL Comments at 2.

[17] See, e.g., SES Americom Comments at 4, Appendix A; Loral Comments at 3; PanAmSat Comments at 3.

[18] PanAmSat Comments at 3.

[19] See, e.g., Hughes Comments at 5; SES Americom Comments at 5.

[20] See, e.g., Hughes Comments at 4-5; SES Americom Comments at 5-6.

and public safety organizations. In the case of PanAmSat's TT&C station, a mission critical link was affected. As PanAmSat explains, a single radar detector could have irreparable consequences to spacecraft functions, up to and including permanent loss of the asset.[21]

C. RADAR's Attempts to Lay Blame on the VSAT Industry for the Problem Must Be Rejected.

RADAR argues that the "VSAT community may have exacerbated the problem through use of unwise siting of its antennas or poor receiver or antenna design."[22] As RADAR acknowledges, however, under Commission rules it is not the responsibility of satellite operators to design their systems to withstand interference from radar detectors. Rather, it is the radar detector manufacturer's responsibility to prevent such interference in the first place.

Putting this fact aside, the comments demonstrate that there is very little a VSAT operator can do in the general case to prevent radar interference. The characteristics that render VSAT systems particularly sensitive to radar interference are not flaws in design or deployment, as RADAR alleges, but result from design constraints integral to the VSAT mission.[23] Neither shielding nor relocating the terminal is feasible in the general case.[24] The only way to prevent

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[21] PanAmSat Comments at 3.

[22] RADAR Comments at 4.

[23] RADAR points specifically to the small size and relatively non-directional receive characteristics of these antennas, as compared to larger, more directional Fixed-Service antennas in other bands. RADAR Comments at 4. Escort/BEL also cites the low directivity and "large, undesirable" sidelobes of VSAT terminals. Escort/BEL Comments at 2. However, the small size of the terminal, which dictates the degree of directionality of its beam, is an integral part of VSAT system design, necessary for providing affordable, easily-deployed service, as RADAR acknowledges. RADAR Comments at 4. Moreover, the comments demonstrate that larger, more directional, antennas have also been affected by radar detector interference. PanAmSat Comments at 2-3; Loral Comments at 2-3; Comsearch Comments at 2. VSAT antennas are, in fact, highly directional, in order to receive low level satellite signals and discriminate signals from adjacent satellites. The analysis and field measurements presented in this proceeding demonstrate that even with off-axis discrimination in excess of 40 dB, radar detectors will cause harmful interference to VSAT systems. The reason Fixed-Service has not been affected by radar detectors (if indeed that is the case) is not the directionality or the height of the terrestrial beam, but the much higher fade margin employed in such links as compared to noise-limited satellite links.

[24] SES Americom Comments at 5-6; Loral Comments at 3. As noted in numerous comments, the best satellite operators can do is attempt to seek cooperation from radar detector users. This is possible only in cases of radar detectors left on in parked cars, and even then, is not an effective solution because users can be alerted only after damage is done. See, e.g., SES Americom Comments at 5, n.7; Hughes Comments at 6. Moreover, in a

interference is for the Commission to take steps to make Part 15 enforceable against radar detector manufacturers.[25]

III. THE COMMISSION SHOULD ADOPT LIMITS ON THE EMISSIONS OF RADAR DETECTORS IN 11.7-12.2 GHz BAND THAT ARE SUFFICIENT FOR THE PROTECTION OF VSAT AND OTHER SATELLITE OPERATIONS.

A. The Current Part 15 Limits, Even if Made Applicable to Radar Detectors, Are Insufficient to Adequately Protect VSAT Operations.

RADAR states that its members will voluntarily commit to limiting emissions from radar detectors to 500 μ V/m, measured at 3 meters, in the frequency range 11.7-12.2 GHz, for units imported or domestically manufactured on or after June 1, 2003.[26] However, RADAR proposes this action without any analysis or discussion whatsoever of the ability of this limit to protect authorized satellite operations in the band.

As demonstrated in the SES Americom Comments, to adequately protect most of the various types of systems deployed by SES Americom and its customers, emissions from radar detectors must not exceed about 30 μ V/m into the VSAT terminal.[27] This result is consistent with that presented by Hughes, and very close to the 60 μ V/m figure computed by Comsearch.[28] Therefore, the RADAR proposal is wholly insufficient to bring radar detectors into compliance with the requirements of Section 15.5(b).[29]

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case cited by Loral, the owner of an interfering radar detector refused either to turn off the detector after parking or to accept relocation of his personal parking spot. Loral Comments at 2.

[25] See Hughes Comments at 2, 6; Loral Comments at 2.

[26] RADAR Comments at 2, 5, 9.

[27] SES Americom Comments at 7, Appendix B.

[28] Hughes Comments at 7, Exhibit A at 11; Comsearch Comments at 3-5. The difference between the SES Americom and Comsearch results is due to differing assumptions and level of detail in the computations. Comsearch employed a generic interference objective and link parameters, while SES Americom based its calculations on specific links. As a result, for example, Comsearch's interference objective assumption is 3 dB higher than SES Americom's. Therefore, although the two results are quite close, SES Americom believes that the more stringent emission level of 30 μ V/m is necessary for protection of the specific networks of its customers.

[29] It must be emphasized that an emission limit at even the 30 μ V/m level would not protect every VSAT terminal. As demonstrated in the SES Americom and Hughes filings, the protection criteria of a given VSAT

B. No Matter What Steps Radar Detector Manufacturers May Agree To Take "Voluntarily" to Reduce Emissions In the Band, It is Still Necessary to Adopt a Limit on Emissions in the Band for the Protection of Satellite Operations.

RADAR argues that, with its promise to voluntarily constrain emissions to under 500 μ V/m at 3 meters in the subject band, no regulation whatsoever is necessary.[30] Putting aside the fact that this level is insufficient to protect satellite operations, RADAR's proposal does not eliminate the need for Commission action.

First, as RADAR acknowledges, its members do not account for all of the radar detectors sold in the United States. According to its own figure, 15% of radar detectors are sold by non-member companies. Therefore, RADAR's unilateral commitment does not render regulation unnecessary.

Furthermore, the only apparent reason that RADAR would argue against implementation of a limit that it is already pledging to meet is to avoid the application of regulatory compliance and enforcement provisions that go along with such limits. Given the severe and continuing problems that have been encountered with radar detectors, it is vitally important that equipment authorization procedures (such as certification) and fine provisions apply to such devices. The Commission must not allow Part 15 radar detector operations to escape these obligations.

Escort/BEL argues that even the 500 μ V/m limit would be overly burdensome to the electronics industry, and proposes instead that the radar detector industry vacate the 11.7-12.2 GHz band.[31] The only apparent justification for this proposal is to preserve the ability of

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terminal is a function of several factors. Neither the SES Americom nor the Hughes analysis addresses the "worst-case" combination of VSAT terminal parameters that would give rise to the tightest emissions limits. SES Americom Comments at 7; Hughes Comments, Exhibit A at 11. Both focus on sensitive links that are commonly used. It is beyond question that these authorized links must be protected under Commission rules.

[30] RADAR Comments at 2, 5, 9.

[31] Escort/BEL Comments at 3-4.

electronic devices other than radar detectors to continue to have the flexibility to exceed that limit in the band. Leaving open the ability of other devices to emit at unregulated levels in the band only invites a repeat of the same severe problem satellite systems are already experiencing with radar detectors, and further Part 15 violations. Moreover, even if radar detectors vacate the band, radar detector out-of-band emissions in the band could be high, particularly if these levels are unregulated, as Escort/BEL proposes.[32]

In sum, no matter what measures radar detector manufacturers individually choose to avoid interference to satellite systems in the 11.7-12.2 GHz band, emission limits at a level sufficient to adequately protect these satellite systems are necessary.

C. The Timeline Proposed by RADAR for Complying with Part 15 Is Unreasonable.

The timeline proposed by RADAR for coming into compliance with Section 15.5(b) obligations is entirely unreasonable, given the harm demonstrated by the comments in this proceeding. Every day that goes by in which these devices are still on the market magnifies the damage done to the satellite industry. As the Commission well knows, even though a well-coordinated recall should significantly reduce interference events, numerous devices already sold will remain in use, by customers who either do not learn of the recall, or do not wish to take the trouble to trade in their device.

It is entirely unclear why RADAR believes it has any right to continue manufacturing and selling devices that fail to comply with Section 15.5(b) for *any* length of time going forward. In view of the violation of Part 15 demonstrated by the comments in this proceeding, it would be entirely justified for the Commission to issue an immediate injunction against sale of devices that cannot be demonstrated to protect satellite services in the 11.7-12.2

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[32] Furthermore, this proposal would leave at risk satellite systems operating at other Ku-band frequencies, such as those operated by SES below 11.7 GHz. See SES Comments at 3, n.4.

GHz band. SES Americom urges the Commission to take every reasonable step to prevent both use of existing non-compliant devices and sale of future non-compliant devices. Strong and expedited regulatory action is necessary to protect vital satellite services against the Part 15 violations by radar detectors that unquestionably have been demonstrated in this proceeding.

IV. THE NPRM IS SUFFICIENTLY SPECIFIC TO SERVE AS A BASIS FOR NEW REGULATION.

RADAR argues that the NPRM is not sufficiently specific to serve as a basis for new regulation, and that, under the Administrative Procedure Act, the Commission must first issue a Further Notice containing the terms of the proposed rules, or a description of them.[33] The Commission should not permit RADAR's baseless argument to delay adoption of rules sufficient to adequately protect satellite operations from unlicensed radar detector emissions.

As RADAR concedes, a notice of proposed rulemaking need not lay out specific rule language. It must only provide sufficient factual detail and rationale for the rule for parties to comment meaningfully. [34]

That is manifestly the case here. The Commission clearly and in unambiguous terms proposed to apply emission limits to radar detectors for the protection of VSAT terminals.[35] RADAR and Escort/BEL have conceded that radar detectors emit at levels beyond Part 15 limits applicable to other types of devices,[36] and the record clearly demonstrates that these levels are harming authorized satellite services.

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[33] RADAR Comments at 2, 6-7.

[34] Id. at 6.

[35] RADAR selectively cites language in the NPRM in which the Commission seeks comment on "whether there is a need" to require radar detectors to comply with emission limits, RADAR Comments at 6, while ignoring unambiguous language in the first paragraph of the NPRM stating that the Commission "[is] proposing to . . . require that radar detectors be subject to emission limits . . ." NPRM, ¶ 1.

[36] RADAR Comments at 4; Escort/BEL Comments at 2.

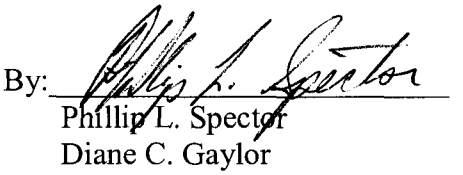
Part 15 already provides a detailed framework for implementing limits on radar detector emissions. The principal remaining issue is the appropriate value for the limits to be applied to radar detectors. It is therefore entirely disingenuous for RADAR to complain that "we can neither guess what the Commission might ultimately do, nor comment in sufficient detail on each of the many possibilities."[37] The Commission was clear in the NPRM that its goal is to place a limit on radar detector emissions, and RADAR members have had ample opportunity to comment on what that limit should be.

CONCLUSION

SES Americom urges the Commission to reject the RADAR and Escort/BEL proposals, and to adopt provisions sufficient to protect VSAT and other satellite operations in the 11.7-12.2 GHz band from emissions from unlicensed radar detectors.

Respectfully submitted,

SES AMERICOM, INC.

By: 
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[37] RADAR Comments at 7.